

**Boyne Friedrich HOHENSTEIN**  
Application No.: 10/534,759

**REMARKS**

Reconsideration of this application is respectfully requested. Petition is hereby made for a one-month extension of time to respond to the outstanding Office Action of March 26, 2008.

Claims 1-10 are pending in the application. Upon entry of this Amendment, claims 1, 4, 5, 7, and 8 will be amended to clarify the claimed invention and to better conform such claims to U.S. practice, claims 6 and 10 will be canceled and new claims 11-13 will be added.

The Examiner is thanked for indicating, in the outstanding Office Action, that objected to claims 5, 8 and 9 would be allowable if placed in independent form to include all of the limitations of the base claim and any intervening claims. Dependent claims 5 and 8 have now been amended to please them in independent form to include the limitation of independent claims 1 and 7 before amendment by this Amendment. Accordingly, claims 5, 8 and 9 should now be in condition for allowance.

In the outstanding Office Action, the Examiner also rejected claims 6 and 10 under 35 U.S.C. §112, second paragraph, as being indefinite omnibus claims. Claims 6 and 10 have now been canceled. As such, the Examiner's rejection of claims 6 and 10 under §112, second paragraph, should now be withdrawn.

The Examiner also rejected claims 1-4 and 7 under 35 U.S.C. §102(b) as being anticipated by U.S. patent No. 3,516,478 to Dunn. The Examiner's rejection is respectfully traversed.

For a claimed invention to be anticipated by a prior art reference, every element of the claim must be disclosed in the reference.

Here, amended independent claims 1 and 7 are not anticipated by Dunn because Dunn does not disclose a separating vessel for separating a molten collector material from a molten slag that includes a collection vessel for collecting collector material dripping off a separating surface that extends beyond the collection vessel so that slag being carried along the separating surface is carried beyond the collection vessel and thereby separated from the collector material, as recited in amended independent claims 1 and 7. This feature is exemplified in the embodiment of the invention shown in Figures 3 and 4 of the present application where molten slag droplets 11a are shown dripping from a separating surface 15 to the sides of, and not into, a collection vessel 17.

Dunn purports to disclose an apparatus for separating impurities from metal melts in a filament spinning device. Dunn is not concerned with a separating vessel for separating a molten collector material from a molten slag, as recited in independent claims 1 and 7 of the present application. Dunn's apparatus includes a crucible 10 that is described by Dunn as including:

a cylindrical wall 11 and an orifice plate 12. The orifice plate 12 is provided with an orifice 13 through which molten metal 14 is extruded to

form metal fiber. Hearth plate 16 is comprised of a flat disc surface 17 and a cylindrical wall 18 which is integrally connected to and is axially aligned with disc plate 17. Cylindrical wall 18 rests upon orifice plate 12 so as to separate disc surface 17 from orifice 13. Thus, hearth plate 16 creates a first reservoir 20 and second reservoir 21. Disc plate 17 is provided with a plurality of passageways 22 through which melt 14 passes as it moves from first reservoir 20 into second reservoir 21 and out through orifice 13.

Dunn, col. 3, Ins. 37-51. Three alternative embodiments of the hearth plate 16 shown in Figures 1 and 2 of Dunn are shown in Figures 3 to 8 of Dunn. They include a second embodiment, hearth plate 30, shown in FIGS. 3 and 4, that is substantially dome-shaped to provide a second reservoir, a third embodiment hearth plate 32, shown in FIGS. 5 and 6, provided with a plurality of passageways 34 in an arcuated impression 33 [sic, 35] that, in combination with orifice plate 12, provides orifice 13 with a second reservoir of substantially impurity free melt, and a fourth embodiment hearth plate 40, shown in FIGS. 7 and 8, that is provided with a plurality of radially extending grooves 41 which intersect in the center thereof to form a cavity 42, which, in combination with orifice plate 12, provides orifice 13 with a second reservoir of substantially impurity free melt. In all of these embodiments, the second reservoir corresponds to reservoir 21 in the first embodiment, shown in Figure 1 and 2, formed by

hearth plate 16 in combination with orifice plate 12. Dunn, col. 3, Ins. 55-70.

Assuming, *arguendo*, that Dunn's separation apparatus can be used as a separating vessel for separating a molten collector material from a molten slag, as argued by the Examiner, the "collection vessel" recited in independent claims 1 and 7 of the present application for collecting the collector material dripping off of a separating surface (presumably on the underside of heath plates 16, 30, 32 or 40) would be second reservoir 21. But, because second reservoir 21 is formed by one of hearth plates 16, 30, 32 or 40 being placed over orifice plate 12 of crucible 10, in each of the four embodiments shown in Figures 1-8 of Dunn, second reservoir 21 is clearly co-extensive with the diameter of the hearth plates 16, 30, 32 and 40, such that any "separating surface" on the underside of heath plates 16, 30, 32 or 40 could not extend beyond second reservoir 21, such that any slag being carried along such a separation surface is not carried beyond second reservoir 21. Indeed, any slag being carried along an underside surface of heath plates 16, 30, 32 or 40 would be collected in second reservoir 21 so as to preclude any slag passing through passageways 22, 34 or 44 of hearth plates 16, 30, 32 and 40 from being separated from the collecting material passing through passageways 22, 34 or 44. This is directly contrary to the separating vessel recited in independent claims 1 and 7 of the present application, in which the separating

**Boyne Friedrich HOHENSTEIN**

Application No.: 10/534,759

vessel includes a collection vessel for collecting the collector material dripping off of a separating surface extending beyond the collection vessel so that the slag being carried along such surface is carried beyond the collection vessel and thereby separated from the collector material.

Dependent claim 4, one of the claims rejected by the Examiner as being anticipated by Dunn, further describes the outlet aperture of the separating vessel described in claim 1 as having dimensions, such that the collector material passes through the aperture under the force of gravity, while the molten slag is substantially prevented from passing through the outlet aperture, so that the majority of molten slag will be arrested at the outlet aperture, but also recognizing that a small portion of the molten slag may pass through the outlet aperture. Because Dunn is, as discussed above, directed to an apparatus for separating impurities from metal melts in a filament spinning device, Dunn is not concerned with separating a molten collector material from a molten slag in a separating vessel. As such, Dunn also does not disclose with his crucible 10 passageways 22, 34 or 44 in hearth plates 16, 30, 32 and 40 that having dimensions, such that a collector material passes through the passageways under the force of gravity, while a molten slag is substantially prevented from passing through the outlet passageways, so that the majority of molten slag will be arrested at the outlet passageways, but also recognizing that a small portion of the molten slag may pass through the outlet passageways.

Dunn's apparatus uses the hearth plates, 16, 30, 32 or 42, discussed above to remove insoluble non-metallic film and particle inclusion impurities from a melt prior to the melt entering an orifice 13. As discussed above, the hearth plate is shaped to divide the crucible into first and second reservoirs, 20 and 21, with the first reservoir 20 receiving a spinning charge during heating up and melting operations and the second reservoir 21 providing the orifice 13 with a supply of impurity free melt. Dunn teaches that the hearth plate (16, 30, 32 or 42) is provided with a plurality of passageways 22, 34 or 44 which establish a melt flow path from the first reservoir 20 into the second reservoir 21 and through which the melt passes. However, Dunn also teaches that the passageways 22, 34 or 44 each have a cross-sectional area which is larger than the cross sectional area of the orifice 13 and that substantially all of the film and inclusion impurities are effectively separated from the melt by the hearth plate as the melt passes through the passageways 22, 34 or 44 from the first reservoir 20 into the second reservoir 21. Thus, clearly Dunn does not anticipate claim 4 for the further reason that Dunn such that a collector material passes through the passageways under the force of gravity, while a molten slag is substantially prevented from passing through the outlet passageways, so that the majority of molten slag will be arrested at the outlet

**Boyne Friedrich HOHENSTEIN**

Application No.: 10/534,759

passageways, but also recognizing that a small portion of the molten slag may pass through the outlet passageways.

Thus, Dunn does not anticipate amended independent claims 1 and 7 of the present application. And because dependent claims 2-4 rejected in the outstanding Office Action as being anticipated by Dunn depend either directly or indirectly from claim 1, such claims are also not anticipated by Dunn. Moreover, because newly added dependent claims 11-13 depend either directly or indirectly from independent claims 1 or 7, such claims are also not anticipated by Dunn.

With regard to U.S. Patent No. 777,725 to Fox, listed on the Form PTO-892 mailed with the outstanding Office Action, it is believed that no comments are necessary regarding this patent because the Examiner did not apply this patent against the claims pending in the application.

In view of the foregoing it is believed that all of the claims pending in the application, *i.e.*, claims 1-5, 7-9 and 11-13, are now in condition for allowance, which action is earnestly solicited. If any issues remain in this application, the Examiner is urged to contact the undersigned at the telephone number listed below.

**Boyne Friedrich HOHENSTEIN**  
Application No.: 10/534,759

Respectfully submitted,

**NIXON & VANDERHYE P.C.**

By:

Robert A. Molan

**Robert A. Molan**

Reg. No. 29,834

**RAM:dt**

901 North Glebe Road, 11th Floor  
Arlington, VA 22203  
Telephone: (703) 816-4000  
Facsimile: (703) 816-4100